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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,658	09/28/2001	Hiroki Yoshida	35.C15836	3504

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EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 12/12/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,658

Applicant(s)

YOSHIDA, HIROKI

Examiner

Hai C Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15, 17, 18, 25 and 35-37 is/are allowed.
- 6) ☒ Claim(s) 16, 19, 20, 29-34, 38-49, 52-65 and 68-71 is/are rejected.
- 7) ☒ Claim(s) 21-24, 26-28, 50, 51, 66 and 67 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. The following claims are objected to because of the following informalities:

Claim 1:

- Line 16, "scanning surface" should read --scanned surface--;
- Line 17, "scanning surface" should read --scanned surface--.

Claim 2:

- Line 2, "direction" should read --directions--.

Claim 19:

- Line 4, "scanning surface" should read --scanned surface--.

Claim 21:

- Line 16, "scanning surface" should read --scanned surface--;
- Line 17, "scanning surface" should read --scanned surface--.

Claim 22:

- Line 3, "scanning surface" should read --scanned surface--.

Claim 24:

- Line 16, "scanning surface" should read --scanned surface--;

Art Unit: 2861

- Line 17, "scanning surface" should read --scanned surface--.

Claim 27:

- Line 3, "scanning target surface" should read --scanned surface--.

Claim 29:

- Line 16, "scanning surface" should read --scanned surface--;
- Line 17, "scanning surface" should read --scanned surface--.

Claim 30:

- Line 3, "scanning surface" should read --scanned surface--.

Claim 32:

- Line 16, "scanning surface" should read --scanned surface--;
- Line 17, "scanning surface" should read --scanned surface--;
- Line 20, "scanning surface" should read --scanned surface--.

Claim 33:

- Line 3, "scanning surface" should read --scanned surface--.

Claim 35:

- Line 16, "scanning surface" should read --scanned surface--;
- Line 17, "scanning surface" should read --scanned surface--;
- Line 20, "scanning target surface" should read --scanned surface--;
- Line 21, "scanning surface" should read --scanned surface--.

Claim 36:

- Line 3, "scanning surface" should read --scanned surface--.

Claim 45:

- Line 3, "omitted from the plurality of a light emitting portions" should read –
emitted from the plurality of light emitting portions--.

Claim 52:

- Line 3, "scanning surface" should read --scanned surface--.

Claim 68:

- Line 3, "scanning surface" should read --scanned surface--.

Appropriate correction is required.

Duplicate Claims Objection

3. The following claims **21, 22, 23, 24, 26, 27, 28, 29, 30, and 31** are objected to under 37 CFR 1.75 as being a substantial duplicate of claims **7, 19/7, 20/7, 8, 9, 19/8, 20/8, 16, 19/16, and 20/16**, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. The following claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16:

- It is unclear what the Applicant is intended to claim by using the term "**and/or**" at line 3 to introduce two options that can be selected such that the claim does not clearly set forth the metes and bounds of the patent protection desired.

Claim 29:

- It is unclear what the Applicant is intended to claim by using the term "**and/or**" at line 24 to introduce two options that can be selected such that the claim does not clearly set forth the metes and bounds of the patent protection desired.

Claim 32:

- It is unclear what the Applicant is intended to claim by using the term "**and/or**" at line 25 to introduce two options that can be selected such that the claim does not clearly set forth the metes and bounds of the patent protection desired.

Claim 49:

- It is unclear what the Applicant is intended to claim by using the term "**and/or**" at line 3 to introduce two options that can be selected such that the claim does not clearly set forth the metes and bounds of the patent protection desired.

Claim 65:

- It is unclear what the Applicant is intended to claim by using the term "**and/or**" at line 3 to introduce two options that can be selected such that the claim does not clearly set forth the metes and bounds of the patent protection desired.

Claims 19/16, 20/16, 30, 31, 33, 34, 70/29, 70/32, 71/29, 71/32 are dependent from claims 16, 29 and 32 above, and are therefore indefinite.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 38-45, 52-53/38-45, 54-61, 68-69/54-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rim et al. (U.S. 6,134,040) in view of Tateoka (U.S. 4,634,232).

Tateoka discloses a multi-beam scanning recording apparatus comprising an incident optical system (collimating lens 31, and cylindrical lens 32, Fig. 6) for making a plurality of light beams emitted from the plurality of light emitting portions (13 and 14) incident on a deflector (polygon mirror 33), a scanning optical system (36) for forming images of the plurality of light beams deflected by the deflector on a surface to be scanned, and one setting means (half-waveplate 15) for setting a sub-scanning interval error between scanning lines due to a polarization angle difference between the light beams to be not more than 1/5 of a desired scanning line interval (the half-waveplate 15 being used to ensure that the positions of the scanning lines on the photosensitive member 37 can be maintained constant relative to each other).

However, Tateoka fails to teach the scanning optical system having scanning optical elements made of resin.

Regardless, Rim et al., an acknowledged prior art, discloses a laser scanning system comprising a set of scanning optical lenses (15) made of plastic substance such as zeonex whose birefringence and distortion are improved.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a plastic scanning optical system as taught by Rim et al. in the device of Tateoka. By doing so, one would provide a low-cost set of scanning optical lenses whose internal distortion is improved.

With regard to claims 39, 54 and 55, Tateoka further teaches the scanning optical system having an anamorphic power for imaging the light beams.

With regard to claims 40 and 56, Tateoka fails to teach the setting means setting the polarization angle difference between the light beams to be not more than 20°. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the polarization angle difference provided by the half-waveplate (15) to an optimum range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Although Tateoka is silent on the inclusion of a developer, a transfer device, and the fixing device, it is however well known in the printing art that the above devices are inherently provided with the optical scanning device disclosed by either Tateoka or Rim et al. to form a complete laser printing system.

8. Claims 46-48, 52-53/46-48, 62-64, and 68-69/62-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateoka in view of Rim et al., as applied to claims 38 and 52 above, and further in view of Ando (EP 0 804 015 A2).

Tateoka, as modified by Rim et al., discloses all the basic limitations of the claimed invention except for the light source comprising a monolithic multi-beam light source.

Regardless, it is old and well known in the art of printing to use a single or plural monolithic multi-beam light sources as the light source for the raster output scanner, which have the merits in terms of cost, working, and adjustment as evidenced by Ando, an acknowledged prior art. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to adapt monolithic light sources as the radiating light sources as taught by Ando in the device Tateoka, as modified by Rim et al. since such light sources are commonly used as the main radiation light source in an optical scanning device.

Allowable Subject Matter

9. Claims 1-15, 17, 18, 25, 35-37 are allowed.

10. Claims 16, 29, 32, 49, 65 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. Claims 19, 20, 30, 31, 33, 34, 70, 71 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. Claims 49-51, 65-67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is an examiner's statement of reasons for allowance: the main reason for allowance is the inclusion of the limitations related to the scanning optical means, which "has at least one scanning optical element made of a resin, and said scanning optical element made of resin has birefringence due to a stress distribution generated upon cooling in a molding process thereof such that the directions of principal axes of birefringence at one end portion of said scanning optical element made of the resin are different from those at the other end portion, opposite to said one end portion with respect to an optical axis thereof in a main scanning direction, of said scanning optical element made of the resin" and 'wherein an interval between adjacent scanning lines of scanning lines formed on the scan[ed] surface by the plurality of light beams whose images are formed on the scan[ed] surface through said scanning optical element made of the resin changes in the main scanning direction in an effective scanning region" as they are claimed in the combination set forth in the base claims 1, 21, and 35.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

Art Unit: 2861

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

December 10, 2002